Public Noticed Nelson Fact Sheet

General Information

Permit Number:	WI-0029459-10-0
Permittee:	Village of Nelson, PO Box 131, Nelson WI 54756
Discharge Location:	NE ¼ of the SE ¼ of Section 6, T22N, R13W, Town of Nelson, Buffalo County, WI
Receiving Water:	groundwaters of the Lower Buffalo River Watershed of the Buffalo-Trempealeau River Basin in Buffalo County, WI
StreamFlow ($Q_{7,10}$):	N/A
Stream Classification:	N/A
Annual Average Design Flow	0.042 MGD
Significant Industrial Loading?	None
Operator at Proper Grade?	Yes
Approved Pretreatment Program?	N/A

Facility Description

The Nelson Wastewater Treatment Facility consists of a primary stabilization pond, a secondary stabilization pond and three seepage cells. The system treats domestic wastewater and there are no contributing industrial dischargers. Discharge is solely to groundwater and monitoring wells are on site to monitor for groundwater impacts. The annual average design flow is 0.042 million gallons per day (MGD) and the actual annual average flow in 2020 was 0.020 MGD. No major operational changes are proposed for this permit reissuance. Significant changes proposed in the upcoming permit are as follows: 1) the preventative action limit (PAL) for pH was increased, 2) the alternate concentration limit (ACL) for chloride was reduced, and 3) a compliance schedule has been included in the permit that requires the permittee conduct a survey of the top of casing elevations on the monitoring wells and submit a report of the survey results. Also added this permit term is a requirement that the permittee monitor sludge once for PCBs.

Substantial Compliance

After a desk-top review of all Discharge Monitoring Reports, CMAR's, Land Application reports, compliance schedule items and a site visit on 26 October 2021, this facility has been found to be in substantial compliance with their current permit.

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)**
701	0.021 MGD (Jan-Nov 2021)	Representative influent samples shall be collected from the final lift station.
001	0.020 MGD (2020)	Representative effluent samples shall be collected at the

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)**
		monitoring manhole prior to discharge to the seepage cells.
003	Sludge has not been removed from the stabilization pond since 11/6/2006. The permittee does not intend to do so in the upcoming permit term.	Representative sludge samples shall be collected from stabilization pond 1 once in 2023 for List 1 parameters and PCBs.

Sample Point Designation For Groundwater Monitoring Systems			
System	**Sample Pt Number**	**Well Name**	**Comments**
Seepage Cells	801	MW-1	Up-gradient, Background
Seepage Cells	802	MW-2	Down-gradient, Non-Point of Standard
Seepage Cells	803	MW-3	Down-gradient, Non-Point of Standard
Seepage Cells	804	PZ-1	Down-gradient, Non-Point of Standard

Influent - Monitoring

Sample Point Number: 701- INFLUENT AT FINAL LIFT STATION

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD5, Total		mg/L	2/Month	24-Hr Comp	
Suspended Solids, Total		mg/L	2/Month	24-Hr Comp	
Nitrogen, Total Kjeldahl		mg/L	Monthly	24-Hr Comp	
Nitrogen, Ammonia (NH3-N) Total		mg/L	Monthly	24-Hr Comp	
Nitrogen, Organic Total		mg/L	Monthly	Calculated	
Nitrogen, Nitrite + Nitrate Total		mg/L	Monthly	24-Hr Comp	

Changes from Previous Permit:

Flow sample frequency changed to daily from continuous for eDMR reporting purposes.

Explanation of Limits and Monitoring Requirements

Influent monitoring is required to assess loading to the facility and treatment performance. The required parameters and sampling frequency are appropriate for a land treatment system in accordance with Ch. NR 206.09(2), Wis. Adm. Code.

1 Land Treatment –Monitoring and Limitations

Sample Point Number: 001- MANHOLE PRIOR to SEEPAGE CELLS

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD5, Total	Monthly Avg	50 mg/L	2/Month	Grab	
Suspended Solids, Total		mg/L	2/Month	Grab	
Nitrogen, Total Kjeldahl		mg/L	Monthly	Grab	
Nitrogen, Ammonia (NH3-N) Total		mg/L	Monthly	Grab	
Nitrogen, Organic Total		mg/L	Monthly	Calculated	
Nitrogen, Nitrite + Nitrate Total		mg/L	Monthly	Grab	
Nitrogen, Total		mg/L	Monthly	Calculated	
Chloride		mg/L	Monthly	Grab	
Solids, Total Dissolved		mg/L	Monthly	Grab	
pH Field		su	Monthly	Grab	

Changes from Previous Permit:

Flow sample frequency changed to daily from continuous for eDMR reporting purposes.

Explanation of Limits and Monitoring Requirements

Requirements for land treatment of municipal wastewater are determined in accordance with ch. NR 206 Wis. Adm. Code. Standard monitoring frequencies are included in individual wastewater permits based on the size and type of the facility, in order to characterize effluent quality and variability, to detect events of noncompliance, and to ensure fairness and consistency in permits issued across the state. Guidance and requirements in administrative code were considered when determining the appropriate monitoring frequencies for pollutants that have final effluent limits in effect during this permit term. No changes to monitoring frequency were made to this permit.

Per NR 140.28 Wis. Adm. Code, an exemption to the nitrogen and chloride limits stated in NR 206.08 Wis. Adm. Code, was granted during the facility planning and approval process. Due to the proximity to the Mississippi River, the groundwater flow direction and the groundwater elevation, this facility is considered a groundwater discharger with a short flow path to surface water. This means that the discharged treated wastewater remains in the groundwater a very short time before it recharges to the river. Because this is a short flow path to surface water, the requirement for total nitrogen and chloride limits at this outfall (per NR 206.05 Table 1, Wis. Adm. Code,) can be altered under s. NR 206.06 and NR 206.08 Wis. Adm. Code. The conditions that allowed for the original exemption approval still exist. Therefore, the exemptions will remain in the upcoming permit term and no effluent limits for these compounds are included in the permit.

2 Groundwater –Monitoring and Limitations

2.1 Groundwater Monitoring System for Seepage Cells

Location of Monitoring system: Nelson WWTF, NE ¼ of the SE ¼ of Section 6, T22N, R13W, Town of Nelson, Buffalo County, WI

Wells to be Monitored: 801 (MW-1), 802 (MW-2), 803 (MW-3) and 804 (PZ-1)

Well Used To Calculate PALs: 801 (MW-1)

Point of Standard Application Wells: None

Parameter	Units	Preventative Action Limit	Enforcement Standard	Frequency
Depth To Groundwater	feet	*****	N/A	Quarterly
Groundwater Elevation	feet MSL	*****	N/A	Quarterly
pH Field	su	8.0	N/A	Quarterly
Solids, Total Dissolved	mg/L	550	N/A	Quarterly
Chloride Dissolved	mg/L	145	250	Quarterly
Nitrogen, Ammonia Dissolved	mg/L	1.2	9.7	Quarterly
Nitrogen, Organic Dissolved	mg/L	2.5	N/A	Quarterly
Nitrogen, Nitrite + Nitrate (as N) Dissolved	mg/L	2.4	10	Quarterly

Changes from Previous Permit:

Due to changes in trends in the background well used to calculate the limits, the preventative action limit (PAL) for pH was increased and the alternate concentration limit (ACL) for chloride was reduced slightly per Table 1 and Table 2 of NR 140 Wis. Adm. Code, respectively. The phosphorus monitoring that was required quarterly during one year of the last permit term has been removed.

Explanation of Limits and Monitoring Requirements

Groundwater limits and requirements are determined in accordance with ch. NR 140, Wis. Adm. Code. Indicator parameter Preventive Action Limit (PAL) values are established per NR 140.20 Wis. Adm. Code. Alternative Concentration Limits as allowed under NR 140.28 Wis. Adm. Code, are established on a case by case basis. For more information see the groundwater evaluation from Will Myers dated November 15, 2021 titled “Village of Nelson – Land

Disposal System Evaluation Report, WPDES Permit WI-0029459", including details on why the above changes were made to the groundwater monitoring requirements.

At this site the facility discharge plume flows into surface water (Mississippi River backwaters) before reaching ch. NR 140 Wis. Adm. Code Enforcement Standard point of standards application for this facility. This has allowed the Department to make a determination of compliance with NR 140 groundwater quality Enforcement Standards at the site. This determination was made during the Village's (NR 110) Facility Planning effort and allowed the Department to set alternative effluent limits (per NR 206.06 Wis. Adm. Code,) for the facility discharge to seepage cells at Outfall 001. Continued groundwater monitoring is required to document groundwater flow into surface water and to monitor both the effectiveness of site soil treatment processes, and the quality of impacted groundwater flowing into surface water.

3 Land Application - Monitoring and Limitations

Municipal Sludge Description						
Sample Point	**Sludge Class (A or B)**	**Sludge Type (Liquid or Cake)**	**Pathogen Reduction Method**	**Vector Attraction Method**	**Reuse Option**	**Amount Reused/Disposed (Dry Tons/Year)**
003	N/A	Liquid	N/A	N/A	N/A	N/A
Does sludge management demonstrate compliance? Yes						
Is additional sludge storage required? No						
Is Radium-226 present in the water supply at a level greater than 2 pCi/liter? No						
Is a priority pollutant scan required? No						

Sample Point Number: 003- STABILIZATION POND 1

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	Once	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Once	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Once	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Once	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Once	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Once	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Once	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Once	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Once	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Once	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Once	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Once	Composite	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Nickel Dry Wt	Ceiling	420 mg/kg	Once	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Once	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Once	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Once	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Once	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Once	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	

Changes from Previous Permit:

A requirement has been added the requires the permittee monitor sludge once for PCBs.

Explanation of Limits and Monitoring Requirements

Requirements for land application of municipal sludge are determined in accordance with ch. NR 204 Wis. Adm. Code. Ceiling and high quality limits for metals in sludge are specified in ch. NR 204.07(5) Wis. Adm. Code. Requirements for pathogens are specified NR 204.07(6) and in NR 204.07 (7) Wis. Adm. Code for vector attraction requirements. Limitations for PCBs are addressed in NR 204.07(3)(k) Wis. Adm. Code. Radium requirements are addressed in NR 204.07(3)(n) Wis. Adm. Code.

4 Compliance Schedules

4.1 Survey TOC of Groundwater Monitoring Wells

Required Action	Due Date
Monitoring Well Site Map and Well Elevations: Submit a site map in accordance with NR 141.065, Wis. Adm. Code. This site map must include a scale bar and directional arrow and accurately show site structures, property boundaries, nearby surface water and water supply wells and all site groundwater monitoring wells. Include the monitoring well top of casing (TOC) elevations. An existing site map may be used, however, TOC elevations must be field verified by a registered land surveyor and provided to the department.	06/30/2022

Explanation of Compliance Schedules

Groundwater Monitoring Well Site Map Submittal - Accurate well TOC elevation information is needed to ensure the requirements of Ch. NR 140 Wis. Adm. Code are met.

Special Reporting Requirements

None

Other Comments:

Publishing Newspaper: Buffalo County Journal, PO Box 40, Cochrane, WI 54622-0040

REASON FOR REVOKE/REISSUE: The current permit (issuance WI-0029459-09) is set to expire 03/31/2022. In order to reduce the workload anticipated from the large numbers of permits expiring in 2022, the current Nelson permit is being revoked and reissued one month early, and the next permit term is being shortened by two months so the permit expires during a year of less workload (i.e., December 2026 vs. March 2027). In short, the permit is being revoked and reissued as a workload management tool for the department and has nothing to do with the permittee's performance or compliance.

Attachments:

- NR 140 Groundwater Evaluation Report: See memo from Will Myers dated November 15, 2021 titled "Village of Nelson – Land Disposal System Evaluation Report, WPDES Permit WI-0029459" for more information.

Proposed Expiration Date:

December 31, 2026

Justification Of Any Waivers From Permit Application Requirements

None

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Date: December 22, 2021

cc: SWAMP